
 11<sup>th</sup> International  
 Trade Fair and  
 Symposium for Thermo  
 Process Technology

**Düsseldorf**  
**16/06 – 20/06/15**
**1**
**Industrial Furnaces, Industrial Heat Treatment Plants and thermal processes for**
**1.1**
**Precious Metals**

- 1.1.1 Melting
- 1.1.2 Heat treating
- 1.1.3 Heating
- 1.1.4 Other thermal processes

**1.2**
**Ores**

- 1.2.1 Calcinating
- 1.2.2 Reducing
- 1.2.3 Roasting
- 1.2.4 Sintering
- 1.2.5 Drying
- 1.2.6 Other thermal processes

**1.3**
**Ferrites**

- 1.3.1 Homogenizing annealing
- 1.3.2 Orientation annealing
- 1.3.3 Sintering
- 1.3.4 Presintering
- 1.3.5 Other thermal processes

**1.4**
**Glass, Enamel**

- 1.4.1 Cooling
- 1.4.2 Burning
- 1.4.3 Melting
- 1.4.4 Drying
- 1.4.5 Heat treating
- 1.4.6 Heating
- 1.4.7 Other thermal processes

**1.5**
**Hard Metals**

- 1.5.1 CIM (Chemical Injection Moulding)
- 1.5.2 Debinding
- 1.5.3 Dewaxing
- 1.5.4 High pressure sintering
- 1.5.5 Vacuum sintering
- 1.5.6 Sintering
- 1.5.7 MIM (Metall Injection Moulding)
- 1.5.8 Compressing
- 1.5.9 Brazing
- 1.5.10 Other thermal processes

**1.6**
**Ceramics**

- 1.6.1 Burning
- 1.6.2 Sintering
- 1.6.3 Drying
- 1.6.4 Brazing
- 1.6.5 Other thermal processes

**1.7**
**Non-ferrous metals**

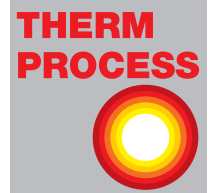
- 1.7.1 Coating
  - 1.7.1.1 Enameling
  - 1.7.1.2 Electroplating
  - 1.7.1.3 Polymer coating
  - 1.7.1.4 Varnish and lacquer drying
  - 1.7.1.5 Other Coating processes
- 1.7.2 CIM (Chemical Injection Moulding)
- 1.7.3 Casting
- 1.7.4 Brazing
- 1.7.5 MIM (Metall Injection Moulding)
- 1.7.6 Refining

**1.7.7**
**Reducing**

- 1.7.8 Purification
- 1.7.9 Melting
  - 1.7.9.1 Alloying
  - 1.7.9.2 Remelting
  - 1.7.9.3 Cleaning
  - 1.7.9.4 Other
- 1.7.10 Sintering
- 1.7.11 Spray Forming
- 1.7.12 Drying
- 1.7.13 Heat treating
  - 1.7.13.1 Precipitation hardening
  - 1.7.13.2 Stress-relieving annealing
  - 1.7.13.3 Homogenization annealing
  - 1.7.13.4 Solution annealing
  - 1.7.13.5 Artificial ageing
  - 1.7.13.6 Soft annealing
  - 1.7.13.7 Other annealing processes
- 1.7.14 Heating
  - 1.7.14.1 Heating, Preheating
  - 1.7.14.2 Holding at temperature (solid phase)
  - 1.7.14.3 Holding at temperature (liquid phase)
  - 1.7.14.4 Postheating
- 1.7.15 Other thermal processes

**1.8**
**Steel and Iron**

- 1.8.1 Prime metallurgy
  - 1.8.1.1 Primary melting
  - 1.8.1.2 Melting
  - 1.8.1.3 Alloying
  - 1.8.1.4 Remelting
  - 1.8.1.5 Holding at temperature (solid phase)
  - 1.8.1.6 Holding at temperature (liquid phase)
  - 1.8.1.7 Cleaning
  - 1.8.1.8 Burning off
  - 1.8.1.9 Postheating
  - 1.8.1.10 Other thermal processes
- 1.8.2 Primary shaping
  - 1.8.2.1 Casting
  - 1.8.2.2 Precision casting
  - 1.8.2.3 MIM (Metall Injection Moulding)
  - 1.8.2.4 Sintering
  - 1.8.2.5 Other thermal processes
- 1.8.3 Heat treating
  - 1.8.3.1 Heating
    - 1.8.3.2 Heating, Preheating
    - 1.8.3.3 Hardening and tempering
    - 1.8.3.4 Tempering
    - 1.8.3.5 Annealing
    - 1.8.3.6 Patenting
    - 1.8.3.7 Hardening
    - 1.8.3.8 Quenching
    - 1.8.3.9 Press quenching
  - 1.8.3.10 Tempering
  - 1.8.3.11 Case hardening
  - 1.8.3.12 Oxidizing
  - 1.8.3.13 Drying
  - 1.8.3.14 Other thermal processes
- 1.8.4 Diffusion processes
  - 1.8.4.1 Carburizing
    - 1.8.4.2 Salt bath carburizing
    - 1.8.4.3 Gas carburizing
    - 1.8.4.4 Low pressure carburizing (LPC)
    - 1.8.4.5 Plasma carburizing



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- 1.8.4.6 Carbo nitriding
- 1.8.4.7 Other carburizing processes
- 1.8.4.8 Nitriding
- 1.8.4.9 Nitrocarburizing
- 1.8.4.10 Saltbath nitriding
- 1.8.4.11 Gas nitriding
- 1.8.4.12 Plasma nitriding
- 1.8.4.13 Other nitriding processes
- 1.8.4.10 Implantation
- 1.8.4.11 Other thermal processes
- 1.8.5 Surface hardening
- 1.8.5.1 Flame hardening
- 1.8.5.2 Induction hardening
- 1.8.5.3 Laser hardening
- 1.8.5.4 Other thermal processes
- 1.8.6 Surface treatment
- 1.8.6.1 Coating
- 1.8.6.2 Inorganic coating
- 1.8.6.3 Enamelling
- 1.8.6.4 Electroplating
- 1.8.6.5 Plastic-coating (evtl. wäre Polymer coating besser)
- 1.8.6.6 Varnish and lacquer drying
- 1.8.6.7 Plasma spraying
- 1.8.6.8 Galvanizing
- 1.8.6.9 Tin-coating
- 1.8.6.10 CVD
- 1.8.6.11 PVD
- 1.8.6.12 Other coating processes
- 1.8.7 Joining technologies
- 1.8.7.1 Welding
- 1.8.7.2 Brazing
- 1.8.7.3 Other joining technologies

- 1.9** Harmful substances
- 1.9.1 Adsorption
- 1.9.2 Catalytic combustion
- 1.9.3 Wet separation
- 1.9.4 Thermal combustion
- 1.9.5 Thermal Recycling, Pyrolysis
- 1.9.6 Other processes

## **2** Equipment for special use

- 2.1** Cooling
- 2.1.1 Cooling equipment
- 2.1.2 Recooling equipment
- 2.2** Laboratory equipment
- 2.2.1 Laboratory-type annealing furnaces
- 2.2.2 Laboratory-type melting furnaces
- 2.2.3 Laboratory-type drying cabinet
- 2.2.4 Other laboratory-type furnaces
- 2.3** Purification
- 2.3.1 Degreasing equipment
- 2.3.2 Pickling equipment
- 2.3.3 Mechanical cleaning plants
- 2.3.4 Spray scrubber
- 2.3.5 Dipping scrubber
- 2.3.6 Other cleaning and purification plants
- 2.4** Quenching equipment

- 2.5** Heat-transfer plants

- 2.6** Chimney technology

## **3** Componentes, equipment and other supplies

- 3.1** Fittings for

- 3.1.1 Gas
- 3.1.2 Liquids
- 3.1.3 Solid

- 3.2** Heating

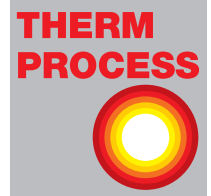
- 3.2.1 Electric heating devices
- 3.2.1.1 Inductive heating devices
- 3.2.1.2 Conductive heating devices
- 3.2.1.3 Resistance heating devices
- 3.2.1.4 Microwave heating devices
- 3.2.1.5 Plasma heating devices
- 3.2.1.6 Arc heating devices
- 3.2.1.7 Transformers
- 3.2.1.8 Other electric heating devices
- 3.2.2 Firing equipment for solid
- 3.2.3 Gas firing equipment
- 3.2.3.1 Burner
- 3.2.3.2 Recuperator burner
- 3.2.3.3 Safety devices
- 3.2.4 Oil firing equipment
- 3.2.4.1 Burner
- 3.2.4.2 Recuperator burner
- 3.2.4.3 Safety devices
- 3.2.5 Multicomponent firing equipment
- 3.2.6 Ladle firing
- 3.2.7 Regenerators
- 3.2.8 Recuperators
- 3.2.9 Radiant tubes
- 3.2.10 Burner controls
- 3.2.11 Flame detectors
- 3.2.12 Heating conductor, rods, wire
- 3.2.13 Graphite and carbon shapes

- 3.3** Handling and transmission technology

- 3.3.1 Conveyors
- 3.3.2 Belt conveyors
- 3.3.3 Conveyor chains
- 3.3.4 Other Handling and transmission equipment

- 3.4** Gas generation (inert and reaction gas, regeneration included)

- 3.4.1 Absorber
- 3.4.2 Pressure alternating equipment
- 3.4.3 Gas-air mixing equipment
- 3.4.4 Gas generators for
- 3.4.4.1 Inert endothermic gas
- 3.4.4.2 Inert exothermic gas
- 3.4.4.3 Inert gas
- 3.4.4.4 Nitrogen
- 3.4.4.5 Hydrogenated inert gas
- 3.4.5 Closed circuit plants for gas
- 3.4.6 Hot-gas generator
- 3.4.7 Mixing chamber



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|-------------|--|
| <b>3.5</b>  | Furnace engineering materials          |
| 3.5.1       | Metallic furnace engineering materials |
| 3.5.2       | Ceramic furnace engineering materials  |
| 3.5.3       | Other furnace engineering materials    |
| <b>3.6</b>  | Measuring instruments and components   |
| 3.6.1       | Cooling rate                           |
| 3.6.2       | Atmospheric measurement                |
| 3.6.3       | Atmospheric control device             |
| 3.6.4       | Pressure measurement                   |
| 3.6.5       | Pressure controlling plant             |
| 3.6.6       | Moisture content measuring             |
| 3.6.7       | Gas analyser                           |
| 3.6.8       | Temperature measurement                |
| 3.6.9       | Temperature control device             |
| 3.6.10      | Water warning device                   |
| 3.6.11      | Other measuring equipment              |
| <b>3.7</b>  | Controlling and automatisation         |
| 3.7.1       | Electrical equipment                   |
| 3.7.2       | Engineering and technical consulting   |
| 3.7.3       | Process control technology             |
| 3.7.4       | Automatisation                         |
| 3.7.5       | Process control equipment              |
| 3.7.6       | Process simulation and software        |
| 3.7.7       | Process optimization                   |
| 3.7.8       | Maintenance and diagnosis systems      |
| 3.7.9       | Other control equipment                |
| <b>3.8</b>  | Process-Material                       |
| 3.8.1       | Hardening salt                         |
| 3.8.2       | Hardening oil                          |
| 3.8.3       | Gas                                    |
| 3.8.4       | Oil                                    |
| 3.8.5       | Heat-transfer agents                   |
| 3.8.6       | Detergent reactants                    |
| <b>3.9</b>  | Test technology                        |
| 3.9.1       | Analysis technology and lab equipment  |
| 3.9.2       | Measuring instruments                  |
| 3.9.3       | Quality test                           |
| 3.9.4       | Material test                          |
| <b>3.10</b> | Pumps, Blowers and Fans                |
| 3.10.1      | Hot-gas recirculators                  |
| 3.10.2      | Cooling pumps and systems              |
| 3.10.3      | Vacuum pumps and systems               |
| 3.10.4      | Lubricating pumps and systems          |
| 3.10.5      | Other Pumps                            |
| 3.10.6      | Blowers                                |
| 3.10.7      | Fans                                   |
| 3.10.8      | Compressors                            |
| <b>3.11</b> | Molten metal processing equipment      |
| 3.11.1      | Electromagnetic conveying channels     |
| 3.11.2      | Inoculation equipment                  |
| 3.11.3      | Inductive stirring equipment           |
| 3.11.4      | Crucibles                              |
| <b>3.12</b> | Heat-insulating and refractory         |
| 3.12.1      | Material                               |
| 3.12.1.1    | Refractory bricks, tiles, profiles     |
| 3.12.1.2    | Refractory materials                   |
| 3.12.1.3    | Acid-resistant bricks                  |

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|----------|---|
| 3.12.1.4 | Insulating bricks, tiles, profiles                      |
| 3.12.1.5 | Insulating materials                                    |
| 3.12.1.6 | High temperature insulation wool                        |
| 3.12.2   | Machinery and plants                                    |
| 3.12.2.1 | Gunning equipments                                      |
| 3.12.2.2 | Compressors   |
| 3.12.2.3 | Other machinery and plants                              |
| <b>4</b> | Workers safety and ergonomic                            |
| <b>5</b> | Consulting, design, service and engineering             |
| <b>6</b> | Trade associations, specialised publisher and magazines |
| <b>7</b> | Training and education                                  |